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10/072,058	02/08/2002	Satoshi Nakamura	FUSA 19.421	1168

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EXAMINER	
LELE, TANMAY S	

ART UNIT	PAPER NUMBER
2684	8

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,058	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Tanmay S Lele	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-12* is/are rejected.

7)☒ Claim(s) *10-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 3 – 12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 10 – 12 are objected to because of the following informalities: referring to a cancelled claim (for example, claim 1). Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 – 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims, 3, 5, 6, and 8, it was not understood what "adjacent paths" were, as a receiver cannot correlate paths (such as in a multi-path environment) and thus where a spatially adjacent path was originating from in order to determine the "level difference between adjacent paths." For purposes of examination, it was assumed that the "adjacent paths" were in reference to the "mutually adjacent reception levels" noted in the specification (for example, page 34, lines 3 –9). Appropriate correction is required.

Claims 4, 7, 9 – 12 are rejected for at least those reasons cited for claims 3, 5, 6, and 8.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3, 5 –7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Kansakoski et al. (Kansakoski, US Patent No. 6,377,813).

Regarding claim 3, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon a combination of the level differences between paths (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Nakano does not specifically teach of plural level differences between adjacent paths or [a combination] of said plural level differences between adjacent paths.

In a related art dealing with the power control in a mobile communications environment, Kansakoski teaches of plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13) and [a combination] of said plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's power control system, Kansakoski's mobile power control adjustments, for the purposes of combating fading caused by mobile proportional to its velocity, as taught by Kansakoski.

Regarding claim 5, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR, comprising (column 3, lines 19 – 32): a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this

command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Nakano does not specifically teach of plural level differences between adjacent paths or said plural level differences between adjacent paths.

In a related art dealing with the power control in a mobile communications environment, Kansakoski teaches of plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13) and of said plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's power control system, Kansakoski's mobile power control adjustments, for the purposes of combating fading caused by mobile proportional to its velocity, as taught by Kansakoski.

Regarding claim 6, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a BER measurement unit for measuring bit-error rate BER (Figure 5 and column 7, lines 45 – 56 and column 10, lines 39 – 53); a correction unit for correcting the target SIR based upon a combination of the rate of change in

fading, the level differences between paths and a difference between measured BER and target BER (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38; column 10, lines 39 – 53; Figures 13A and 13B); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Nakano does not specifically teach of plural level differences between adjacent paths or said plural level differences between adjacent paths.

In a related art dealing with the power control in a mobile communications environment, Kansakoski teaches of plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13) and of said plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's power control system, Kansakoski's mobile power control adjustments, for the purposes of combating fading caused by mobile proportional to its velocity, as taught by Kansakoski.

Regarding claim 7, Nakano in view of Kansakoski, teach all the claimed limitations as recited in claim 6. Nakano further teaches of further comprising a memory for storing correction values of target SIR in correspondence with combinations of rate change in fading and level differences between paths (column 7, lines 45 – 56 and Figures 8A and 8B); wherein said correction unit corrects a correction value, which corresponds to a combination of the rate of change in fading and the level differences between paths read out of the memory, on the basis of

the difference between measured BER and target BER, and corrects the target SIR by said correction value (Figures 13A and 13B and starting column 10, line 54 and ending column 11, line 29).

Regarding claim 11, Nakano in view of Kansakoski, teach all the claimed limitations as recited in claims 5 and 6. Nakano further teaches of wherein said fading detector detects the rate of change in fading based upon the measured SIR (column 3, lines 19 –32).

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Kansakoski et al. (Kansakoski, US Patent No. 6,377,813) and in further view of Dohi et al. (Dohi, US Patent 6,341,224).

Regarding claim 8, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured [value] and target [value] (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38; column 10, lines 39 – 53; Figures 13A and 13B); and means for creating a command, which controls transmission power of the

mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Nakano does not specifically teach of a FER measurement unit for measuring frame-error rate FER or of [a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured] FER [and target] FER or of plural level differences between adjacent paths or said plural level differences between adjacent paths (note the brackets have been added for grammar and clarity and these limitations have been addressed as cited above).

In a related art dealing with the power control in a mobile communications environment, Kansakoski teaches of plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13); of said plural level differences between adjacent paths (starting column 9, line 66 and ending column 10, line 13) and of a FER measurement unit for measuring frame-error rate FER (column 4,lines 46 – 56).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's power control system, Kansakoski's mobile power control adjustments, for the purposes of combating fading caused by mobile proportional to its velocity, as taught by Kansakoski.

Nakano in view of Kansakoski do not specifically teach of [a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured] FER [and target] FER or of plural level differences between adjacent paths or said plural level differences between adjacent

paths (note the brackets have been added for grammar and clarity and these limitations have been addressed as cited above).

In a related art dealing with power control based on SIR using a channel quality metric, Dohi teaches of [a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured] FER [and target] FER (column 3, lines 55 – 59 and column 5, lines 30 – 42) and additionally of a FER measurement unit for measuring frame-error rate FER (column 3, lines 55 – 59 and column 5, lines 30 – 42).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano and Kansakoski's power control system, Dohi's FER measurements, for the purposes of setting the SIR value with respect to a certain level of channel quality, as taught by Dohi.

Regarding claim 9, Nakano in view of Kansakoski and Dohi teach all the claimed limitations as recited in claim 8. Dohi further teaches of target FER (column 6, lines 4 – 13) and Nakano further teaches of further comprising a memory for storing correction values of target SIR in correspondence with combinations of rate change in fading and level differences between paths (column 7, lines 45 – 56 and Figures 8A and 8B); wherein said correction unit corrects a correction value, which corresponds to a combination of the rate of change in fading and the level differences between the paths read out of the memory, on the basis of the difference between the measured [FER] and the target [FER], and corrects target SIR by said correction value (Figures 13A and 13B and starting column 10, line 54 and ending column 11, line 29).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Kansakoski et al. (Kansakoski, US Patent No. 6,377,813) as applied to claim 3 above, and further in view of Hasegawa (Hasegawa, US Patent No. 6,032,050).

Regarding claim 4, Nakano in view of Kansakoski teach all the claimed limitations as recited in claim 3. Nakano further teaches of further comprising a memory for rounding, as (Lmax-Ls), levels for which the level difference from a maximum level Lmax is less than a set value Ls (as seen in Figures 13A and 13B), and storing correction values of target SIR in correspondence with combinations of level differences between mutually adjacent reception levels in the order of the reception levels (column 7, lines 45 – 55 and starting column 10, line 54 and ending column 1, line 13); calculates level differences between mutually adjacent reception levels (as seen in Figure 13A and 13B and column 11, lines 14 – 29); and said correction unit corrects the target SIR using a correction value corresponding to the combination of level differences read out of the memory (column 7, lines 45 – 55) and paths of the multiple paths (column 7, lines 45 – 54).

Nakano and Kansakoski do not specifically teach of wherein said level-difference calculation unit arranges the reception levels in order of decreasing or increasing size.

In an analogous art dealing with channel seizing and standby control mode, Hasegawa teaches of wherein said level-difference calculation unit arranges the reception levels in order of decreasing or increasing size (column 13, lines 33 – 39).

It would have been obvious to one skilled in the art at the time of invention, to have included into Nakano and Kansakoski's power control method, Hasegawa's ordering system, for

purposes of being able to access a zone normally serviced (in case of emergency), as taught by Hasegawa.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Kansakoski et al. (Kansakoski, US Patent No. 6,377,813) as applied to claims 5 and 6 above, and Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Dohi et al. (Dohi, US Patent 6,341,224) as applied to claim 8, further in view of Watanabe et al. (Watanabe, US Patent No. 5,802,110).

Regarding claim 10, Nakano in view of Kansakoski teach all the claimed limitations as recited in claims 5 and 6, while Nakano in view of Kansakoski and Dohi teach all the claimed limitations as recited in claim 8. Nakano further teaches of wherein said fading detector detects the rate of change in fading from a difference between signals, which has been received from the mobile station before a prescribed time in the past (column 7, lines 45 – 56 and Figures 5, 8A, and 8B).

Nakano and Kansakoski or Nakano in view of Kansakoski and Dohi do not specifically teach [wherein said fading detector detects the rate of change in fading from a difference] between phase of a pilot signal, [which has been received from the mobile station before a prescribed time in the past] and phase of the pilot signal at the present time (note brackets are used for clarity in language and these limitations are taught in the above cited).

In a related art dealing with power control, Watanabe teaches of teach [wherein said fading detector detects the rate of change in fading from a difference] between phase of a pilot signal, [which has been received from the mobile station before a prescribed time in the past] and phase of the pilot signal at the present time (column 7, lines 28 – 46).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano and Kansakoski's (or Nakano in view of Kansakoski and Dohi's) power control system, Watanabe's pilot signal, for the purposes of providing a power control system that can be controlled at high speeds and with high accuracy, as taught by Watanabe.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) and Kansakoski et al. (Kansakoski, US Patent No. 6,377,813) as applied to claims 5 and 6 above, and Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Kansakoski et al. (Kansakoski, US Patent No. 6,377,813) and Dohi et al. (Dohi, US Patent 6,341,224) as applied to claim 8, further in view of Tiedemann, Jr. et al. (Tiedemann, US Patent No. 6,317,587).

Regarding claim 12, Nakano in view of Kansakoski teach all the claimed limitations as recited in claims 5 and 6, while Nakano in view of Kansakoski and Dohi teach all the claimed limitations as recited in claim 8.

Nakano and Kansakoski, or Nakano in view of Kansakoski and Dohi, fail to teach of wherein said fading detector detects the rate of change in fading based upon direction of transmission power control by TPC bits.

In a related art dealing with power control, Tiedemann teaches of wherein said fading detector detects the rate of change in fading based upon direction of transmission power control by TPC bits (column 10, lines 22 – 25 and column 3, lines 45 –58).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano and Kansakoski's (or Nakano in view of Kansakoski and Dohi's) power control system, Tiedemann's power control bit monitoring, for the purposes of providing a timely power control

system to provide robust communication link quality under fading conditions, as taught by Tiedemann.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Tanmay S Lele
Examiner
Art Unit 2684

NAY MAUNG
SUPERVISORY PATENT EXAMINER

tsl
January 13, 2004